

June 30, 2006

MEMORANDUM

TO: Mr. Steve Murray, P.L.S. - Tippecanoe County Surveyor

FROM: David W. Eichelberger, P.E. - CBBEL, Indianapolis

PROJECT: **Park 350 Subdivision**
CBBEL Project No. 02-038 DO

DEVELOPER/OWNER: **Lafayette Union Railway Company**

RECOMMENDATION: **Final Approval with Conditions**

The Park 350 Subdivision is located south of C.R. 350 South, approximately 1500 feet west of the intersection of U.S. 52 and C.R. 350 South. Approximately one-half of the existing 136.7-acre site drains north to the C.R. 350 South roadside ditch. The south half of the site drains south to the Kirkpatrick Regulated Drain. The applicant is proposing to construct roads and applicable infrastructure to support pending industrial development. Under proposed conditions, 31.9 acres of the industrial park will drain to C.R. 350 South, while 104.8 acres will drain to the Upper Kirkpatrick Ditch. Planned channel reconstruction along the Kirkpatrick Regulated Drain will provide a suitable outlet for the majority of stormwater runoff within the Park 350 Subdivision.

As noted above, the Kirkpatrick Regulated Drain is located south of the subject site. The south half of the subject site drains directly to the Kirkpatrick Regulated Drain. The north half of the subject site drains to the C.R. 350 South roadside ditch, which flows to a point west of Concord Road before draining south to the Kirkpatrick Regulated Drain. The project site is not within the Tippecanoe County MS4 Area.

This project was previously reviewed in memorandums dated June 24 and June 30, 2005. The project received final approval with conditions at the July 6, 2005 Drainage Board Meeting. The applicant has since modified the drainage/detention system to provide storage for the majority of the site (104.8 acres) within a single, off-site detention pond located south of an abandoned railroad line. The railroad ballast will be open cut to allow installation of a storm sewer and remain open to provide an emergency stormwater route from the development to the off-site pond. The pond will be over-designed to accommodate future stormwater detention needs associated with the development of LUR properties upstream of Park 350. As a result of the project design changes, a reduced, on-site drainage area (31.9 acres) will be conveyed to C.R. 350 South. After a review of the revised plans and stormwater analysis, CBBEL recommends final approval of the new stormwater management plan with the following conditions:

Variances/Encroachments

1. The proposed detention pond (Pond 300) includes a 4:1 slope from the top of bank to the normal pool. For a proposed detention pond without a fence, this slope should be 6:1. Also, the proposed detention pond does not include the required maintenance ledge. The applicant requested a variance from these detention pond requirements at the July 6, 2005 Drainage Board meeting. The Drainage Board granted the variance with the condition that a safety fence be installed around the ponds. The current plans do not appear to include this fence. If a fence is not installed around the proposed detention pond, the applicant must include warning signs and rescue equipment stations.
2. The construction plans must include the existing J.N. Kirkpatrick Regulated Drain Easement, and the proposed easement along the Upper J.N. Kirkpatrick Regulated Drain reconstruction project. It appears that portions of the proposed pond will encroach into the existing J.N. Kirkpatrick Regulated Drain Easement and the proposed drainage easement for the Upper J.N. Kirkpatrick Regulated Drain reconstruction project. The applicant should widen the proposed pond embankment to 20 feet to allow future maintenance along the Upper J.N. Kirkpatrick Regulated Drain and the proposed pond.

Stormwater Quantity

1. It does not appear that the impact of tailwater on the performance of Pond 300 was accounted for in the ICPR model. In addition, the anticipated 100-year frequency flood elevation along the Upper J.N. Kirkpatrick Regulated Drain reconstruction project for the reach along the proposed detention pond should be included on the plans.
2. The applicant must clarify land ownership for the storm sewer system downstream of Structure 251 and Pond 300. If Pond 300 and the associated storm sewers are to be constructed at an off-site location, written authorization from the property owner must be provided. In either case, the applicant should plat or dedicate a drainage easement around the proposed pond and around the storm sewer system downstream of Structure 251. The applicant should also plat or dedicate a drainage easement for the reconstructed Upper J.N. Kirkpatrick Regulated Drain channel.
3. It appears the Orifice Plate Detail on Sheet C801 should be revised to indicate Structure 301 (the upstream end of the pond outlet pipe).
4. Capacity calculations for the proposed drainage swales must be provided.
5. Specifications should be provided for the construction of the detention pond embankment. The specifications should address, at a minimum, embankment material, compaction, and lift thickness. The plans should note that, upon completion, independent certification of the embankment construction must be submitted to the Tiptecanoe County Surveyor's Office.

6. The applicant has included drainage easements for the on-site stormwater management system. However, the proposed drainage easement for NE-CHANNEL does not include the entire swale. This swale should incorporate the entire swale width, and should be at least 30 feet wide, as this swale is an emergency overflow route.

Stormwater Quality

1. The water quality volume (WQv) elevation for Pond 300 needs to be based on the corresponding 5.96 acre-feet of storage, as determined in the Detention Basin Volume Computations. The WQv orifice elevation in the ICPR model as well as the pond outlet pipe must be revised accordingly.
2. The individual lots within the Park 350 Subdivision will require post construction BMP measures that, combined with the proposed detention pond (Pond 300) to be constructed with the overall development, must meet the 80% TSS removal requirement. Individual lots located in NW-DIRECT, NE-DIRECT, and West-Basin will need entirely independent post construction BMPs as they will drain to the C.R. 350 South roadside ditch without any stormwater quality measures constructed with the overall development.
3. The applicant should coordinate post-construction stormwater quality BMP measures for the proposed streets with the Tippecanoe County Surveyor's Office.
4. The project area in Item A3 (Sheet C105) of the Stormwater Pollution Prevention Plan appears to be incorrect. Item A14 of the same sheet should be revised to list the pre- and post-developed peak runoff rates discharging to C.R. 350 South or the Upper J.N. Kirkpatrick Regulated Drain.
5. A BMP O&M Manual must be provided for the proposed detention pond, the sumped inlets, and the W-CHANNEL forebay.
6. The applicant must complete and submit the "Commercial Property Recorded Master Covenant and Agreement Regarding On-Site BMP Maintenance and Drainage".

General Conditions

1. The applicant must still receive consent, in writing, from the appropriate utilities in order to encroach into the electric and gas line easements.
2. Certified plans and calculations must be submitted before final approval can be granted.
3. The applicant should still obtain approval from the Tippecanoe County Highway Department for all work proposed within future right-of-way areas and for all work within the C.R. 350 South Right-of-Way.

4. The Stockwell National Wetland Inventory Map indicates the presence of a wetland in the southwest portion of the project site. The applicant has hired a firm to investigate the site and report its findings. If a regulatory wetland is present, the applicant should either provide revised construction plans showing how wetland impacts will be avoided, or obtain approval from the U.S. Army Corps of Engineers and/or the Indiana Department of Environmental Management for all work proposed within the wetland. If it is determined that there is no wetland present on the site, the applicant should submit a concurrence letter from the COE and/or IDEM for the file.
5. The applicant has provided a narrative and photographs to document the condition of the C. R. 350 South roadside ditch. The applicant still should provide color photos for clarity.
6. It should be noted that this final approval with conditions pertains to the overall development of the Park 350 Subdivision, and does not include the individual lots. Applications should be submitted to the Tippecanoe County Surveyor's Office for each individual lot within the Park 350 Subdivision development.
7. The applicant must present the project at the Tippecanoe County Drainage Board meeting for the project to be considered for approval.
8. The applicant must pay any final drainage review fees per Ordinance 2005-04-CM and submit a letter to the County Surveyor's Office stating that these fees will be paid.
9. The applicant must pay the Phase II stormwater program fees.
10. All listed issues must be completely addressed before final plan approval and sign-off will be granted by the County Surveyor's Office.

No error or omission in either the plans, calculations or applications (whether said plans, calculations or applications have been reviewed by the review engineer or not) shall permit or release the applicant and designer from constructing this work in any other manner than that provided for in the County Ordinance.

pc: The Schneider Corporation

DWE/jd

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